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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,844	03/22/2004	Takashi Izuta	P/1596-77	2467
2352	7590	01/25/2006	EXAMINER	
OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403			DHINGRA, RAKESH KUMAR	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,844

Applicant(s)

IZUTA, TAKASHI

Examiner

Rakesh K. Dhingra

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of invention of Group II (Claims 9, 16) in the reply filed on 10/18/05 is acknowledged.

Accordingly Claims 1-8 are withdrawn from further consideration by the examiner pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant's argument regarding reference to "the invention of Zuta, claims 9-16" in the Restriction requirement is found persuasive and agreed to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al (US Patent No. 6,767,840) in view of Watanabe et al (US patent No. 6,024,888) and Padhi et al (US PG PUB No. 2003/0209523).

Regarding Claim 9: Uehara et al teach a substrate treating apparatus (Figure 1, 2) for performing a predetermined treatment of a plurality of substrates as immersed in a heated treating solution, comprising:

a wafer processing bath (treating tank) 10 for storing the heated treating solution;

a wafer holder (substrate holding device) 41 for holding the substrates received from a substrate transport mechanism and a wafer rotating mechanism 52-59 for rotating and moving (immersing) the substrates 40 in the heated treating solution stored in said treating tank (Column 5, line 5 to Column 6, line 45).

Uehara et al do not teach substrate transport mechanism and control part for controlling substrate holding device.

Watanabe et al teach an etching apparatus (Figure 2) that includes a reaction chamber 31, a wafer boat 33 and a moving or transfer mechanism (transport mechanism) 37 for transferring the wafer boat (with plurality of wafers) between transfer chamber 35 and reaction chamber 31 (Column 5, lines 55-67).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use substrate transport mechanism as taught by Watanabe et al in the apparatus of Uehara et al to increase handling speed of the substrates.

Uehara et al in view of Watanabe et al do not teach control part for controlling substrate holding device.

Padhi et al teach a wafer processing apparatus (Figures 1, 2) that includes a wafer control system 222 (control part) that controls the functions of each component (includes substrate holding device) in the system and comprises a programmable microprocessor that uses software specifically designed to control all components (includes substrate holding device) in the system as per process requirements (Paragraph 0035).

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Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a control system (control part) as taught by Padhi et al in the apparatus of Uehara et al in view of Watanabe et al to provide automated control of process.

Regarding Claims 10,12: Uehara et al teach that apparatus can carry out etching of silicon nitride layer using hot phosphoric acid (Column 11, lines 30-40).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al (US Patent No. 6,767,840) in view of Watanabe et al (US patent No. 6,024,888) and Padhi et al (US PG PUB No. 2003/0209523) as applied to Claim 9 and further in view of Chau et al (US PG PUB No. 2003/0132480).

Regarding Claim 11: Uehara et al in view of Watanabe et al and Padhi et al teach all limitations of the claim except that heat treating solution is sulphuric acid.

Chau et al teach (Figure 5) that that wet etch process can be done using hot sulphuric acid to strip resist layers from substrate (Paragraph 0023).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use sulphuric acid for wet etching as taught by Chau et al in the apparatus of Uehara et al in view of Watanabe et al and Padhi et al to enable stripping of photo resist layers.

Claims 13, 14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara et al (US Patent No. 6,767,840) in view of Ueno et al (US Patent No. 5,421,905).

Regarding Claim 13: Uehara et al teach a substrate treating apparatus (Figure 1, 2) for performing a predetermined treatment of a plurality of substrates as immersed in a heated treating solution, comprising:

a wafer processing bath (treating tank) 10 for storing the heated treating solution;
a wafer holder (substrate holding device) 41 for holding the substrates received from a substrate transport mechanism and a wafer rotating mechanism 52-59 for rotating and moving (immersing) the substrates 40 in the heated treating solution stored in said treating tank (Column 5, line 5 to Column 6, line 45).

Uehara et al do not teach the apparatus has a substrate holder with rods that are supported in cantilever fashion, substrate heating device in the back plate and substrate transport mechanism.

Ueno et al teach a wafer treating apparatus (Figure 1, 2) that includes a case 30 washing vessels 20, 21, 23, 24, a boat 32 and a wafer fork (substrate holding device with back plate) 41 that includes support rods (holding rods) 43 for holding substrates W and where the holding rods are supported in a cantilever fashion (Figure 9). Ueno et al also teach substrate transport mechanism comprising of elevator means 33a, arm 33 (Figure 2) for supporting and moving wafer boat 32. Ueno et al further teach a IR heater (heating device) 52 that extends along support rods 43 (that are part of support assembly). Ueno et al also teach that orientation of IR heater 52 can be changed and thus heating device could be placed close to wafer fork (back plate) [Column 2, line 60 to Column 4, line 65].

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use substrate holding and transport mechanism as taught by Ueno et al in the apparatus of Sakaguchi to minimize contamination of substrate cleaning solutions (Column 1, lines 45-50).

In this regards courts have ruled (Case law):

“ The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248, 1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979).”

Regarding Claims 14, 16: Uehera et al teach that apparatus can carry out etching of silicon nitride layer using hot phosphoric acid (Column 11, lines 30-33).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uehera et al (US Patent No. 6,767,840) in view of Ueno et al (US Patent No. 5,421,905) as applied to Claim 13 and further in view of Chau et al (US PG PUB No. 2003/0132480).

Regarding Claim 11: Uehera et al in view of Ueno et al teach all limitations of the claim except that heat treating solution is sulphuric acid.

Chau et al teach (Figure 5) that that wet etch process using hot sulphuric acid can be done to strip resist layers from substrate (Paragraph 0023).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use sulphuric acid for wet etching as taught by Chau et al in the apparatus of Uehera et al in view of Ueno et al to enable stripping of photo resist layers.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rakesh Dhingra


Parviz Hassanzadeh
Supervisory Patent
Examiner Art Unit 1763